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Remarks/Arguments

Specification – Amendment

Applicant has amended the specification to correct errors. In particular, the chemical formula found at column 8, lines 27-35 of U.S. Patent No. 5,997,910 has been amended to correctly change the "2" in the upper R constituent from a superscript to a subscript and the bond between that R and the P has been changed from a double bond to a single bond. This amendment serves to correct typographical errors in the chemical formula only, and does not add any new matter.

Regarding the amendment to the paragraph found at column 8, lines 46-51, the specification was amended during prosecution of the patent for which reissue was sought to correct the unknown term "alkinyl" to the correct chemical term "alkynyl." The current amendment of the specification is intended to reinstate that prior amendment, although it does not appear in the patent for which reissue was sought, as discussed further below.

Claim 1 - Correction

Claim 1 has been amended to change "growth stimulating amounts . . ." in the preamble to "growth stimulating effective amounts . . ." This amendment presents no new matter. The amendment conforms reissue application claim 1 to claim 1 of the patent for which reissue is sought. The word was omitted in error during preparation of the preliminary amendment in this reissue proceeding.

Claim 1 - Rejection under 35 U.S.C. § 251

The Examiner has rejected application claim 1 under 35 U.S.C. § 251 as being based upon "new matter added to the patent for which reissue is sought." In particular, the Examiner has rejected as "unsupported" the substitution of the term "alkynl" for "alkinyl" in claim 1 by applicant's preliminary amendment.

With all due respect, the Examiner has erred. Applicant is not seeking to add new matter. Rather, applicant is seeking to correct claim 1. To the best of applicant's knowledge, the term "alkinyl" has no known chemical significance. Applicant's intent in

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preparing its application was that the well-known term "alkynyl" be used. The fact that it was not used was an error.

In making his rejection, the Examiner has noted that this "substitution" was raised as an issue under 35 U.S.C. § 112 during prosecution of the patent for which reissue was sought. Applicant does not dispute this. As filed, the application recited "alkinyl" in two places in the specification and in two corresponding places in application claim 1. By amendment following the first office action, applicant changed "alkinyl" to "alknlyl" in claim 1, but did not do so in the specification. The Examiner then rejected claim 1 for indefiniteness under 35 U.S.C. § 112 (Paper No. 5). Applicant responded by amending the specification to change "alkinyl" to "alknlyl." As applicant put it: "In response, the spelling of alkynyl in the specification has been corrected to overcome such rejection. As a result of the amendment to the specification, claim 7 should now overcome the rejection under 35 U.S.C. § 112.

To the best of applicant's knowledge, this amendment was never rejected. However, it does not appear in the patent for which reissue is sought, and the Examiner changed "alkynyl" to "alkinyl" in application claim 1 (now claim 1) in an Examiner's amendment accompanying the notice of allowance.

The Examiner states that "if the correction proposed is merely correction of a spelling error, it is not an error 'of substance' correctable by reissue" (OA 3). We do not dispute that this error, standing alone, would not support reissue of the application for which reissue is sought. However, this reissue applicant is based on other, substantial errors, as the Examiner is aware. There is no question that the Examiner has the discretion to correct this minor error, and application respectfully solicits that correction, which will obviate the need to seek a certificate of correction at a later time.

Claims 1-2 - 35 U.S.C. § 102(b) Rejections

The Unexpected Properties of the Claimed Compositions

Phosphorus is an essential major element in plant nutrition because it governs the energy producing reactions, including those that are oxidative, and photophosphorylative and the production of adenosine diphosphate ("ADP") and adenosine triphosphate ("ATP"). Energy-rich phosphate bonds of ADP and ATP

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provide the energy for many of the physiological reactions that occur in plants.

The element phosphorous appears in two general forms that concern this reissue application — phosphonate and phosphate. The term "phosphonate," sometimes also referred to as "phosphite," means the salts (organic or inorganic) of either phosphonic acid or phosphorous acid. Phosphonic and phosphorous acids have the formula H_3PO_3 and a molecular weight of 82. The term "phosphate" means the salts (organic or inorganic) of phosphoric acid having the formula H_3PO_4 and a molecular weight of 98.

Phosphonates had been used as fertilizers prior to the inventions in issue. The same was true of phosphates. But these compositions had not been combined to create a composite fertilizer. When applicant did so, unexpectedly excellent fertilizers resulted.

This is detailed, for example, in Table 6 of the reissue application and related text:

TABLE 6

| FOLIAR NUTRITIONAL EVALUATIONS OF K-PHOS AND PHOS-MIGHT ON RHAPHIOLEPIS INDICA | | | | | | |
|---|---|-----------|--------------------|----|----|----|
| TREATMENT | | RATE | No. of Shoots/Rep. | | | |
| | | | A | B | C | D |
| 1) | POTASSIUM PHOSPHONATE SOLUTION | 1% | 22 | 13 | 20 | 15 |
| 2) | POTASSIUM PHOSPHATE SOLUTION | 1% | 28 | 23 | 25 | 32 |
| 3) | POTASSIUM PHOSPHONATE SOLUTION | 1/2% | 23 | 26 | 24 | 8 |
| | + POTASSIUM PHOSPHATE SOLUTION | + 1/2% | | | | |
| 4) | POTASSIUM PHOSPHATE SOLUTION | 2% | 24 | 38 | 32 | 24 |
| 5) | CONTROL | — | 4 | 1 | 7 | 3 |
| | | | | | | |

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As can be seen from Table 6, all four nutritional treatments provided growth responses greater than the untreated control, and phosphates at 1% and 2% were superior to phosphonate at 1%. The combination, however, produced substantially and unexpectedly higher growth responses than the control. This composition further provides the added benefit of being fungicidal as well.

Fenn et al.

The Examiner has rejected application claims 1 and 2 under 35 U.S.C. § 102(b) as being anticipated by Fenn et al., which relates to experimental work with antifungal compositions. However, claims 1 and 2 relate to fertilizers, not fungicides. Apparently recognizing this key difference, the Examiner asserts that claims 1 and 2 are not limited to fertilizers but instead encompass the described compositions *per se*. The Examiner reads the preambles of claims 1 and 2 as stating "future intended use" rather as a limitation to fertilizers.

With all due respect, this is plain error. "The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Corning Glass Works v. Sumitomo Electric U.S.A.* 9 USPQ2d 1962 (Fed.Cir. 1989). Even a cursory review of the specification here leaves no room for doubt that what the inventor "actually invented" was a class of *in vivo* agricultural fertilizers, not the compositions *per se*. The preambles clearly reflects this fact by reciting that the compositions for fertilizing comprise "*enhanced growth stimulating effective amounts*" of the two recited salts.

However, to meet the Examiner's objection and to clarify claims 1 and 2, the preamble of each claim has been amended. In particular, the preambles have been amended to replace the original opening phrase "A composition for fertilizing comprising . . ." with the phrase: "An *in vivo* agricultural fertilizer comprising . . ." This amendment overcomes any conceivable assertion that claims 1 and 2 are mere statements of intended use that do not limit the scope of the claim. In *Corning*, for

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example, the claim preamble recited an "optical waveguide comprising . . ." The Court rejected the proposition that the claim covered all optical fibers, stating that to "read the claim in light of the specification indiscriminately to cover all types of optical fibers would be divorced from reality. The invention is restricted to those fibers that work as waveguides as defined in the specification." *Coming* at 9 USPQ2d at 1966. See also *Diversitech Corp. v. Century Steps, Inc.*, 7 USPQ2d 1315, 1320 (Fed. Cir. 1988).

After incorrectly deciding that claims 1 and 2 relate merely to "future intended use, the Examiner rules that Fenn et al. anticipates claims 1 and 2 under the doctrine of inherency. In particular, the Examiner argues that Fenn et al. is anticipatory because any composition that provides antifungal activity is a fertilizer because "the crop growth would be stimulated" by the antifungal activity (OA 4). Applicant respectfully submits that this line of argument is meritless and ignores the limitations on the doctrine of inherency.

Federal Circuit decisions "emphasize that an anticipatory inherent feature or result must be consistent, necessary and inevitable, not merely possible or probable." *Chisum on Patents* § 3.03[2][b] (2003 ed.). See also *Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc.*, 32 USPQ 2d 1017 (Fed.Cir. 1994) ("The mere fact that a certain thing may result from a given set of circumstances is insufficient to prove anticipation."). However, the only *in vivo* testing in Fenn of a purported fungicide did not demonstrate the unexpectedly superior fertilizer activity of applicant's inventions.

Fenn et al. involved testing of Aliette (mainly aluminum tris-*O*-ethy phosphonate) and phosphorus acid as fungicides. Phosphate was used in both *in vivo* and *in vitro* testing. In the *in vivo* testing, superphosphate was used in a potting mixture used to grow *persea indica*. Some plants were planted in uninfected soil. Others were planted in infected soil and sprayed with Aliette.

Still others were planted in infected soil and sprayed with phosphorus acid. This test work failed to show that either of the phosphite compounds was acting in concert with phosphate as a fertilizer. The control and test plants exhibited "no significant differences" according to Fenn et al.:

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"Phytophthora root rot control with fosetyl-Al and H_3PO_3 . No significant differences were found in shoot or root dry weights between the noninfested steamed soil treatment and the H_3PO_3 and fosetyl-Al, gave values for shoot growth and percentage healthy roots that were no significantly different from those of the noninfested control treatments. In contrast, plants grown in infested soil, and not treated with either H_3PO_3 or fosetyl-Al showed very little shoot growth and the roots were completely rotted (Table 1)" (Fenn et al. at 607).

Thus, the unexpectedly good fertilizer properties of the claim 1 and claim 2 compositions are not inherent in Fenn et al. There is no basis for an anticipation rejection of claims 1 and 2 based on the doctrine of inherency.

Furthermore, there would be no basis for the Examiner's rejection even if inherency was present in Fenn et al. There is no evidence that their work with the compositions in issue was anything other than accidental or sporadic, and this does not support an anticipation rejection.

The doctrine of accidental anticipation is well established, dating back to the Supreme Court's decision in *Tilghman v. Proctor*, 102 U.S. 707 (1880). Tilghman's patent claimed a process of treating fats and oils by separation into fat acids and glycerine through the action of water at a high temperature and pressure. *Id.* at 708. Although the same separation incidentally occurred in several other prior processes, the Supreme Court rejected the notion that this prior art anticipated the patent:

"We do not regard the accidental formation of fat acid ... as of any consequence in this inquiry. What the process was by which it was generated or formed was never fully understood. Those engaged in the art of making candles, or in any other art in which fat acids are desirable, certainly never derived the least hint from this accidental phenomenon in regard to any practicable process for manufacturing such acids."

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"The accidental effects produced in [two other processes], are of the same character. They revealed no process for the manufacture of fat acids. If the acids were accidentally and unwittingly produced, whilst the operators were in pursuit of other and different results, without exciting attention and without its even being known what was done or how it had been done, it would be absurd to say that this was an anticipation of Tilghman's discovery." *Id.* at 711-12.

Explaining *Tilghman*, one Court reasoned that "A prior use, in order to negate novelty, must be something more than an accidental or casual one. It must, indeed, be so far understood and practiced, or persisted in, as to contribute to the sum of human knowledge and be accessible to the public, becoming an established fact in the art." *Anthracite Separator Co. v. Pollock*, 175 F. 108, 111 (C.C. Pa. 1909) (emphasis added). The Federal Circuit recently considered this doctrine, and while it was distinguished on the facts of the case, there was no indication that the Federal Circuit did not view it as controlling under appropriate circumstances. See *Abbott Laboratories v. Geneva Pharmaceuticals, Inc.*, 182 F.3d 1315, 51 U.S.P.Q.2d 1307 (Fed. Cir. 1999), *cert. denied*, 120 S. Ct. 796 (2000).

The Court of Customs and Patent Appeals also has held on numerous occasions that a prior accidental or unwitting duplication of an invention would not constitute a prior art reference for either § 102 or § 103. See *Application of Marshall*, 578 F.2d 301, 304 (C.C.P.A. 1978); *Application of Bulina*, 362 F.2d 555, 559-60 (C.C.P.A. 1966); *In re Tanczyn*, 202 F.2d 785, 787-88 (C.C.P.A. 1953); *Pittsburg Iron & Steel Foundries Co. v. Seaman-Sleeth Co.*, 160 C.C.A. 605, 248 F. 705, 709 (3d Cir. 1917).

The case *In re Marshall* provides guidance here. Marshall appealed the rejection of several claims teaching the use of oxethazaine for weight loss. The PTO had rejected these claims under 35 U.S.C. § 102 because a prior art reference, specifically the Physician's Desk Reference ("PDR") described the use of oxethazaine for a variety of therapeutic uses, including treatment of esophagitis, gastritis, peptic ulcer, and irritable colon syndrome. *Id.* at 303. The *Marshall* court, however, reversed the rejection, stating:

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"Nothing in the PDR remotely suggests taking oxethazaine to lose weight. If anyone ever lost weight by following the PDR teachings it was an unrecognized accident. An accidental or unwitting duplication of an invention cannot constitute an anticipation." *Id.* at 304.

In short, the *in vivo* work of Fenn et al. is no basis for a finding of anticipation under 35 U.S.C. § 102(b). Fenn neither recognized nor practiced the enhanced fertilizer compositions of claims 1 and 2. And even if he did, his use of those compositions was sporadic and accidental at best.

The *in vitro* work conducted in Fenn et al. gives no indication of fertilizer activity. For these reasons, and in view of applicant's limitation of the claims to *in vivo* agricultural fertilizers, Dolan provides no basis for an anticipation rejection of claims 1 and 2. Finally, it is noteworthy that Fenn et al. determined in their *in vitro* testing that fungicidal activity *decreased* as phosphate level increased (see Figs. 2 and 3 and related text at p. 608). If fungicidal activity can be equated to fertilizer activity, as the Examiner appears to assert (incorrectly), Fenn et al. is not only non-anticipatory, but also a direct teaching away from the subject matter of claims 1 and 2.

Dolan et al.

Dolan et al. involves the same type of testing as that involved in Fenn et al. However, only *in vitro* testing was performed, and none of this work gave any indication of fertilizer activity. For these reasons, and in view of applicant's limitation of the claims to *in vivo* agricultural fertilizers, Dolan provides no basis for an anticipation rejection of claims 1 and 2.

Griffith et al.

Griffith et al. involves the same type of testing as that involved in Fenn et al. and Dolan et al. However, only *in vitro* testing was performed, and none of this work gave any indication of fertilizer activity. For these reasons, and in view of applicant's limitation of the claims to *in vivo* agricultural fertilizers, Dolan provides no basis for an anticipation rejection of claims 1 and 2.

Finally, it is noteworthy that Griffith et al. determined in their *in vitro* testing that fungicidal activity *decreased* as phosphate level increased (see Figs. 1 and 3 and

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related text at pp. 2110-2112). If fungicidal activity can be equated to fertilizer activity, as the Examiner appears to assert (incorrectly), Griffith is not only non-anticipatory, but actually a direct teaching away from the subject matter of claims 1 and 2.

Aliette (also § 103)

Aliette is a fungicide based on aluminum tris-*O*-ethyl phosphonate (fosetyl-Al). The Examiner has determined that the label instructs "use of an aqueous formulation of Aliette . . . with weight/weight ratio of diammonium phosphate" (OA 4). Applicant respectfully urges that this determination is in error.

The Aliette reference identifies Aliette as a fungicide with the active ingredient aluminum tris *O*-ethyl phosphonate. The Aliette reference does not teach use of Aliette as a fertilizer. Further, there is no indication that phosphate, in any form, is incorporated in Aliette. The reference does suggest that a certain phosphate compound can be combined with Aliette. However, it is clear that Aliette teaches combining a particular, highly complex and costly phosphonate compound with phosphate for an entirely different purpose than that identified in claims 1 and 2.

As a general rule, the Aliette reference teaches: "Do not mix ALIETTE® WDG with adjuvants or foliar fertilizers." Thus, the concept of combining phosphate, a well-known foliar fertilizer, with Aliette is generally forbidden in the Aliette reference. Further, this language in the reference suggests that Aliette is distinct from foliar fertilizers, and thus should not be considered for use as a foliar fertilizer.

The Aliette reference teaches only a single situation where mixing Aliette with a specific phosphate compound is contemplated:

For all applications, the pH of ALIETTE® WDG should be raised to 8.0 or above with the addition of an alkaline buffer such as potassium carbonate (3 lbs potassium carbonate per 5 lbs ALIETTE® WDG) or diammonium phosphate (5 lbs diammonium phosphate to 5 lbs ALIETTE® WDG).

The reference makes clear that the sole purpose of mixing Aliette and diammonium phosphate is to raise the pH of the Aliette. It was known in the art that raising the pH of Aliette prior to application was a necessary precaution in order to prevent phytotoxicity (also known as "foliar burn") when Aliette is applied. There is no

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indication that the suggested addition of diammonium phosphate to Alette in this reference was aimed at fertilization.

It is also clear that this reference does not inherently teach an *in vivo* agricultural fertilizer of the type claimed in claims 1 and 2 under discussion. In addition to mixing Alette with diammonium phosphate, the Alette reference also discusses mixing Alette with potassium carbonate. One could argue that if Alette, diammonium phosphate, and potassium carbonate were all mixed in aqueous solution, that potassium phosphonate and potassium phosphate might result. The reference, however, does not discuss mixing Alette with both potassium carbonate and diammonium phosphate at the same time, and in fact specifically teaches away from any such mixture.

The Alette reference states that the pH of Alette may be raised "with the addition of an alkaline buffer such as potassium carbonate . . . or diammonium phosphate." The use of the disjunctive "or," instead of the conjunctive "and" or "and/or" teaches away from mixing both potassium carbonate and diammonium phosphate with Alette at the same time. See *Application of Jursich*, 56 C.C.P.A. 1141, 1144, 410 F.2d 803, 806, 161 U.S.P.Q. 675 (C.C.P.A. 1969) (in prior art reference, "or" must be read disjunctively, and thus did not suggest a combination of two different monomers). Accordingly, because the Alette reference teaches combining Alette with diammonium phosphate or potassium carbonate, not combining Alette with diammonium phosphate *and* potassium carbonate, no credible argument can be made that this reference either implicitly or explicitly teaches all elements of claims 1 and 2 or renders them nor render them obvious under 35 U.S.C. § 103.

Claims 3-14 - Refusal to Consider

The Examiner has refused to consider claims 3 through 14 on the ground that they are "directed to a non-elected invention." The apparent basis for this refusal is the Examiner's belief that "applicant cancelled the method claims from the originally presented application" (OA 2). Applicant respectfully submits that this belief is erroneous.

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The original application contained three method claims (4-6). Each was directed to a method of "stimulating growth in plants." In contrast, this reissue application presented 12 method claims (3-14). Each -- by contrast -- is directed to "a method of stimulating growth and controlling fungus disease in plants," and there are numerous other differences as well. Cancellation of the three original claims cannot reasonably be construed as some form of prospective election or waiver of applicant's right to present different, mistakenly-omitted claims at this time.

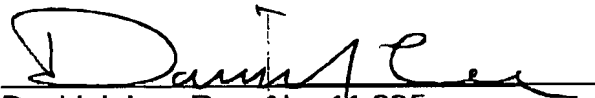
Conclusion

For the reasons stated, applicant submits that this reissue application is in condition for allowance and respectfully solicits that result.

The Petition for a three-month Extension of Time, including authorization to charge the required fee to Deposit Account 12-0600, is included herewith. As the due date for reply fell on a Saturday, the attached Petition and fee serve to extend the period for reply to and including October 20, 2003. Per 37 CFR §1.7, *"When the day, or the last day fixed by statute or by or under this part for taking any action or paying any fee in the United States Patent and Trademark Office falls on Saturday, Sunday, or on a Federal holiday within the District of Columbia, the action may be taken, or the fee paid, on the next succeeding business day which is not a Saturday, Sunday, or a Federal holiday."*

Applicant believes no additional fees are due, however, if any additional fee is deemed necessary in connection with this Amendment and Response, please charge Deposit Account No. 12-0600.

Respectfully submitted



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